

Appl No. 09/646,984
Atty. Docket No. 7070
Amdt. Dated June 17, 2004
Reply to Office Action of March 17, 2004
Customer No. 27752

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1. (Currently Amended) A variant of a serine protease having a modified amino acid sequence of a wild-type amino acid sequence, wherein the modified amino acid sequence comprises a deletion of an amino acid at one or more of positions that correspond to one or more of positions 70—~~84-70 and 75-82~~ of the amino acid sequence of subtilisin BPN', ~~wherein the variant is not $\Delta 75-82$ or $\Delta 71$.~~

Claim 2. (Original) A variant according to Claim 1 wherein the serine protease is selected from the group consisting of subtilisin BPN', subtilisin Carlsberg, subtilisin DY, subtilisin 309, proteinase K, and thermitase.

Claims 3-10 (Canceled).

Claim 11. (Original) A variant according to Claim 2 wherein the serine protease is subtilisin BPN'.

Claim 12. (Canceled).

Claim 13. (Canceled).

Claim 14. (Currently Amended) A variant according to Claim ~~13~~ 1 wherein the deletion of an amino acid is at one or more of positions 75-82 in the amino acid sequence of subtilisin BPN'.

Claim 15. (Currently Amended) A variant according to Claim ~~13~~ 1 selected from the group consisting of:

- (a) $\Delta 70, 75-82$;
- (b) $\Delta 75-82$;
- (c) $\Delta 70, 78, 79$;
- (d) $\Delta 70$;
- (e) $\Delta 75$;

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- (f) Δ 76;
- (g) Δ 78;
- (h) Δ 79;
- (i) Δ 81; and
- (j) Δ 82.

Claim 16. (Original) A variant according to Claim 15 selected from the group consisting of:

- (a) Δ 70, 75 – 82;
- (b) Δ 75 – 82;
- (c) Δ 70, 78, 79;
- (d) Δ 70;
- (e) Δ 78; and
- (f) Δ 79.

Claim 17. (Withdrawn) A variant according to Claim 1 further comprising a substitution of one or more of positions 70 – 84 corresponding to subtilisin BPN'.

Claim 18. (Original) A variant according to Claim 1 further comprising one or more stabilizing mutations.

Claim 19. (Withdrawn) A variant according to Claim 17 further comprising one or more stabilizing mutations.

Claim 20. (Original) A variant according to Claim 18 wherein the stabilizing mutations are selected from the group consisting of I107V, K213R, Y217L, Y217K, N218S, G169A, M50F, Q19E, P5A, S9A, I31L, E156S, G169A, N212G, S188P, T254A, S3C + Q206C, and Q271E.

Claim 21. (Canceled).

Claim 22. (Original) A cleaning composition comprising a variant according to Claim 1 and a cleaning composition carrier.

Claim 23. (Withdrawn) A cleaning composition comprising a variant according to Claim 17 and a cleaning composition carrier.

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Claim 24. (Currently Amended) An aqueous personal care composition comprising:

- (a) a variant of a serine protease having a modified amino acid sequence of a wild-type amino acid sequence, wherein the modified amino acid sequence comprises a deletion of an amino acid at one or more of positions that correspond to one or more of positions 70 – 84 of the amino acid sequence of subtilisin BPN'; and
- (b) a personal care composition carrier.

Claim 25. (Withdrawn) A composition according to Claim 24 wherein the variant further comprises a substitution at one or more of positions 70 – 84 corresponding to subtilisin BPN'.

Claim 26. (Currently Amended) A personal care composition according to Claim 24, which wherein said composition is selected from the group consisting of oral cleaning compositions, contact lens cleaning compositions, hair care compositions, beauty care compositions, and skin care compositions.

Claim 27. (Original) A mutant serine protease gene encoding the variant according to Claim 1.

Claim 28. (Withdrawn) A mutant serine protease gene encoding the variant according to Claim 17.

Claim 29. (New) A variant of a serine protease modified amino acid sequence of a wild-type amino acid sequence, wherein the modified amino acid sequence comprises a deletion of an amino acid at one or more of positions that correspond to one or more of positions 70 – 84 of the amino acid sequence of subtilisin BPN', wherein the variant is not Δ 75 – 83 or Δ 71, wherein the variant further comprises one or more stabilizing mutations selected from the group consisting of I107V, K213R, Y217L, Y217K, N218S, G169A, M50F, Q19E, P5A, S9A, I31L, E156S, G169A, N212G, S188P, T254A, S3C + Q206C, and Q271E, and wherein at least one stabilizing mutation is Y217L.

Claim 30. (New) A variant according to Claim 29 wherein the serine protease is selected from the group consisting of subtilisin BPN', subtilisin Carlsberg, subtilisin DY, subtilisin 309, proteinase K, and thermitase.

Claim 31. (New) A variant according to Claim 30 wherein the serine protease is subtilisin BPN'.

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Claim 32. (New) A variant according to Claim 31 wherein the deletion of an amino acid is at one or more of positions 73-83 in the amino acid sequence of subtilisin BPN'.

Claim 33. (New) A variant according to Claim 29 selected from the group consisting of:

- (k) Δ 70, 75 – 82;
- (l) Δ 75 – 82;
- (m) Δ 70, 78, 79;
- (n) Δ 70;
- (o) Δ 75;
- (p) Δ 76;
- (q) Δ 78;
- (r) Δ 79;
- (s) Δ 81; and
- (t) Δ 82.

Claim 34. (New) A variant according to Claim 29 selected from the group consisting of:

- (a) Δ 70, 75 – 82;
- (b) Δ 75 – 82;
- (c) Δ 70, 78, 79;
- (d) Δ 70;
- (e) Δ 78; and
- (f) Δ 79.